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ABSTRACT

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A Behavioral Comparison of Early and Late Starting Day-Care Children[1]

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The care of infants in group settings outside of the home is currently a topic of heated public debate. Mothers in increasing numbers seek such services, and many legislators see infant day care as a potential solution to the welfare problem. Some scholars argue that good group-care cannot help but be superior to poor home care. Others contend that no group care arrangement can adequately provide certain crucial influences on personality which they believe are mediated by the infant's attachment to his mother.

The opening of a new day care center at Syracuse University afforded an opportunity to observe, in the same setting, the social behavior of two groups of 3-and 4-year-olds who differed markedly in prior day care experience. One group had been in a model infant day care program continuously from about one year of age. This program, conducted at the Children's Center in Syracuse, N.Y. under the direction of Dr. Bettye Caldwell, and later Dr. J. Ronald Lally, was developed to provide maximum educational, medical, and social services to children, beginning as early as six months of age (See Caldwell and Richmond, 1964; 1968; and Lally, 1969, for a complete program description). The other group, which was matched case-for-case with the early-day-care sample, had had no regular day care experience prior to entering the new center. It was anticipated that data describing the social behavior of these two groups would compliment previous evaluations

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of this early-day-care sample[3] and shed more light on the merits of infant day care, which has remained controversial, in part, because we lack knowledge of its effects on social behavior.

- Method -

Subject: The infant-day-care or "Early" group consisted of 20 children who had started day care between 5 and 22 months of age. The mean starting-age was 9.5 months. They had been in day care from 24 to 47 months, with a mean of 36 months attendance at the Children's Center. Subjects in the late group were selected by the new Center's Director, Dr. Margaret Lay, to provide a sample matched case-for-case with the subjects in the Early group on the basis of age, sex, race, and parental occupation and education. At the time of entry into the new Center, 12 of the Late group were being cared for at home by members of the immediate family, 3 others had baby sitters coming into the home while the mother worked, and 4 were cared for in neighbors homes during the mother's working hours. One child had been in several foster homes. Thus, the rearing conditions of the Late group were far more heterogenious than those of the Early group which had uniformly spent from 6 to 9 hours, five days a week at the Children's Center.

Perfect matching was achieved on sex and race for 19 pairs. The samples were closely matched in parental occupation and education. Upon entry into the new Center in September of 1970 the average age of the 38 matched subjects was 3 years, 10 months.

Procedure: All subjects attended the new Center five days per week, six to nine hours per day, continuously through June, resuming again in September. The program under Dr. Lay's direction, was characterized by an absence of structured activities.

It was designed to facilitate child autonomy in using diverse materials (which were always freely available) and to encourage social interaction between children. The adult/child staffing ratio was maintained at 1 to 7. Since there were no assignments of children to specific areas or teachers, each teacher had ample opportunity to observe each child enrolled.

After four months in the Center, that is, in January, nine day-care teachers were asked to rate all children on each of nine different bipolar trait scales. Each scale consisted of a 7-step forced normal distribution. A phrase or two defined each trait and the extremes of the distributions were appropriately labeled. The scores employed in the data analysis were the average of nine teachers' ratings on each trait. The releabilities of the averaged scores on each of the nine traits ranged from .86 to .94, as derived from the Spearman-Brown formula.

Selection of the nine traits was based on a principle components factor analysis (Schwarz, 1972) of 26 trait-scales from a preschool behavior rating form developed by Grossman and Levy, 1969. Three items were selected from each of three major replicated factors. The nine traits are listed in Table 1. The social compatibility factor was represented by tolerance for frustration, cooperativeness with adults, and gets along well with peers. The social assertiveness factor was represented by spontaneity, (physical and verbal) aggression, and motor activity. And the intellectual competency factor by competency at problem solving, planfulness, and ability to abstract.

Three months following the teacher ratings, four graduate students who had spent more than 100 hours in the Center making systematic observations of the children in connection with another study, were asked to rate all children on the same nine traits using the procedure described above. The reliability coefficients calculated from the May ratings, based on four raters, ranged from .76 to .90.

Table 1 contains the stability coefficients based on the correlation between the January average teacher rating and the May average graduate student rating for each trait. It may be noted that all of the traits remained fairly stable over the three month period. These ratings may be regarded as minimum stability coefficients, since they are limited by their respective reliabilities and also by possible systematic differences in the judgment of graduate students and teachers. Considering the possibility of real change in three months, these ratings reflect remarkably similar trait interpretation by graduate students and teachers.

- Results -

The statistical design employed for each trait was a 2 x 2 x 2 mixed factorial analysis of variance with one between dimension (male vs. female) and two within dimensions (Early vs. Late matched pairs, and January vs. May ratings). In none of the separate analyses of variance was there a significant sex difference or interaction involving sex. The use of a forced-distribution method of rating precluded significant main effects due to change over time; however, significant interactions involving the time factor were not precluded, but none were observed. All of the significant effects were main-effect differences between the Early and Late matched pairs. The F ratio relating to this comparison is listed separately for each trait in Table 1. The mean ratings on each trait for the Early and Late groups presented in Table 1 are collapsed across sex and time of rating, since these factors were not statistically significant.

The Early and Late groups differed significantly on three of the nine traits. Participants in infant day care were rated less cooperative with adults, that is, they were more uncooperative and less inclined to do what they were told than the Late-starting day-care group, according to ratings of teachers in January and graduate students in May. This difference was significant at the .05 level. The

infant-day-care group was also rated as more physically and verbally aggressive with peers and adults. They differed from the late group on aggressive at the .01 level of significance. The third trait on which the two groups differed significantly was motor activity ($p < .05$). The infant-day-care participants were more inclined to run about, whereas the late-starting children were relatively more sedentary. There was a tendency for the infant-day-care group to be less tolerant of frustration. The p value was less than .10 but greater than .05. There were no significant differences between Early and Late starters in ability to get along with peers, on spontaneity, or on the three traits with high loadings on the intellectual competency factor, which were success at problem solving, ability to abstract, and planfulness.

- Discussion -

The findings with regard to cooperation with adults and ability to get along with peers parallel results from a recent study by Raph, Thomas, Chess, and Korn (1969) which reported that children with two years of nursery school experience prior to kindergarten had a higher percentage of negative interactions with teachers than kindergarteners with one or no prior years of nursery school experience. These three groups did not differ in percentage of negative interactions with peers or in frequency of interactions with peers or teachers. Taken together, the Raph et al. data and the present study suggest that, the conditions which attend early day care and nursery school experience do not appear to affect adversely the adjustment with peers, but may slow acquisition of some adult cultural values. If, as it would appear, the typical child who starts day care early, has been exposed to a greater diversity of socializing agents than the home reared child, then the present data would seem to fit Bronfenbrenner's (19[illegible] pothesis regarding pluralistic socialization. Bronfenbrenner contends that children experiencing multiple socializing agents are better able to resist pressures to conform, particularly when

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these pressures eminate from adults rather than the peer group. The pattern of lower cooperation with adults, higher verbal and physical aggression and greater motor activity found for children who started day care early suggests that they are more resistant to adult conformity pressures.

During the period when the present study was being conducted, Margaret Lay and William Meyer (1972) were conducting a parallel study on the same groups. Their study employed time-sampled observations of discrete behaviors over an eight-month period from October to May. They found that every child in the infant-day-care group exhibited a greater frequency of social interaction with other children from the Early group than with children from the Late-starting group. Clearly the Early group had formed very strong attachments within their own peer group. Our conclusion that attachment to peers was stronger in the Early group was further supported by the fact that they had a higher frequency of verbal interaction with peers in general than did the Late group. This difference in verbal interaction with peers was observed throughout the year and tended to increase rather than abate. Consistent with Bronfenbrenner (1970), the stronger peer attachment of the Early group may be a consequence of their spending many hundreds of hours in the company of their peers. Furthermore, the shifting and tempory nature of relationships to adults often found in day care settings and the reduced access to parental figures may have augmented attachments to peers in the Early group.

The Lay & Meyer study (1972) provided no direct evidence that the Late group was more strongly attached to adults. For example, there was no difference between the Early and Late group in the frequency of verbal interactions with adults. However, there were differences between the two groups in the types of activities

in which they freely chose to engage, and these differences seem to have implications for their respective identification with adult role models. In comparison with the Late group, the Early group spent relatively more time in the "active" area of the Center which contained a jungle gym, riding toys, large building blocks, and the like, and relatively less time in the "expressive" area which contained a work bench, housekeeping furniture, easels, telephones, etc. They also spent significantly less time in the "task" area which contained books, listening stations, writing materials, counting racks, etc. Since at all times, children were free to chose among these three areas, their preferences are indicative of the role behaviors which each child found most rewarding. It would appear, then, that the Late group was more strongly reinforced by the enactment of adult role behaviors such as housekeeping, reading, and writing. The Early group, on the other hand, was more strongly attracted to peer social interaction and motor expression.

If the hypothesis proves to be true, that early day care experience, relative to home care, results in strong peer ties to the detriment of the acquisition of adult values and role behaviors, what are the implications for later behavior - - say for example, behavior in the public school setting? Fearing that many subjects would be lost to later follow-up, we decided to collect related predictions from their present day-care teachers, to whom we posed the following hypthetical question, "If you were teaching 1st grade, which children would you most and least prefer to have in your class?". The forced-distribution method described above was employed to obtain a rating by eight teachers for each child in the original groups. (At this time (February 1972) four children had already left the center.) Teachers' ratings were averaged and the mean ratings of the Early and Late groups were compared. Although the Early group was slightly less preferred, the difference between

the two groups did not approach statistical significance. Teacher preferences were found to be highly correlated with Stanford-Binet IQ scores on which the two groups did not differ.

It would appear then that the differences observed between the Early and the Late group were not ones which made one group relatively more attractive or preferred than the other from the perspective of Day Care teachers. Nonetheless, the significant differences between the two groups in attraction to expressive and task activities, and the greater adult cooperativeness of the Late group suggests that, when in a formal educational setting, they may be more attentive and more strongly motiviated to achieve. A more definitive answer to this question must await further data.

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TABLE 1

Four-Month Stability of Traits Ratings and Comparisons of Early and Late Groups

TRAIT	r of January and May Ratings	Early M	Late M	(df=27)
Tolerance for frustration (Ability to accept failure, to be interrupted)	.76	3.67	4.16	2.81†
Cooperativeness with adults (Does what he is told)	.81	3.61	4.26	4.56*
Gets along well with peers (Able to play without fights, engage in cooperative play)	.80	3.75	4.06	1.18
Spontaneity (Constricted and cautious vs. "free and open")	.87	4.18	3.71	1.90
Aggression (Physical and verbal aggression toward peers and adults)	.84	4.37	3.62	7.22**
Motor activity (Running about vs. sitting in one place)	.84	4.28	3.61	5.04*
Successful at problem solving (competence in doing tasks)	.81	3.99	3.86	.21
Ability to abstract (Ability to consider abstract concepts)	.89	3.89	3.56	.87
Planfulness (Thinks before doing puzzles, painting, or seems to have a plan in mind)	.89	3.89	3.99	.15

*$p < .05$
**$p < .01$
†$p < .10$

Footnotes

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[3] The following studies, assessing the effects of infant day care, involved the same or overlapping samples from the Children's Center: Caldwell, Wright, Honig, & Tannenbaum, 1970; Lally, Lindstrom, Meyer, & Lay, 1971; Lay & Meyer, 1972; and Schwarz, Krolick, & Strickland, 1972.